FUEL TANK GROUND ANCHOR TIE-DOWN MATERIALS

Low lying lands along the shoreline of rivers, bays and coastal areas may be inundated by floodwaters and tidal surge. In the event of flood or tidal surge, the force of buoyancy will cause submerged heating oil and propane fuel tanks to float away, breaking the supply line to the home and spilling the fuel contained in the tank. Ground anchoring fuel tanks will resist the force of buoyancy and keep tanks tied down. Most fuel tanks are not anchored and are very prone to flotation should rising floodwaters occur.

Basic ground anchoring supplies for heating oil and propane tanks are the same products used nationwide to ground anchor manufactured homes:

- **Four steel ground anchors. Type: double head earth auger of minimum 48 inch length, ¾-inch diameter shaft, with two 6-inch diameter helix disks. Earth auger shall have a tested minimum pull out value of 5,000 pounds. Recommended: galvanized earth auger if available.**

- **Four slotted tie-down strap slotted bolts and nuts. Type: 5/8 inch slotted bolt with 15/16" hex head, square shoulders and nuts.**

- **Thirty feet of tank tie-down strap. Type: 1-1/4 inch x 0.031-inch galvanized steel, Class B, Grade 1, minimum tensile strength of 4,750 pounds (ANSI A225.1 ASTM D3953-91). Recommended: 1¼-inch x 0.031-inch stainless steel, 301-1/4 Hard, minimum tensile strength of 4,750 pounds, if available.**

- **Fifteen feet of vinyl rubber tie-down strap sheathing that encases the strap to prevent metal-to-metal contact between the fuel tank and the tie-down strap. Type: 1½-inch economy discharge irrigation hose or equivalent.**

Protecting Your Property From Flooding

FEMA

Are You at Risk?

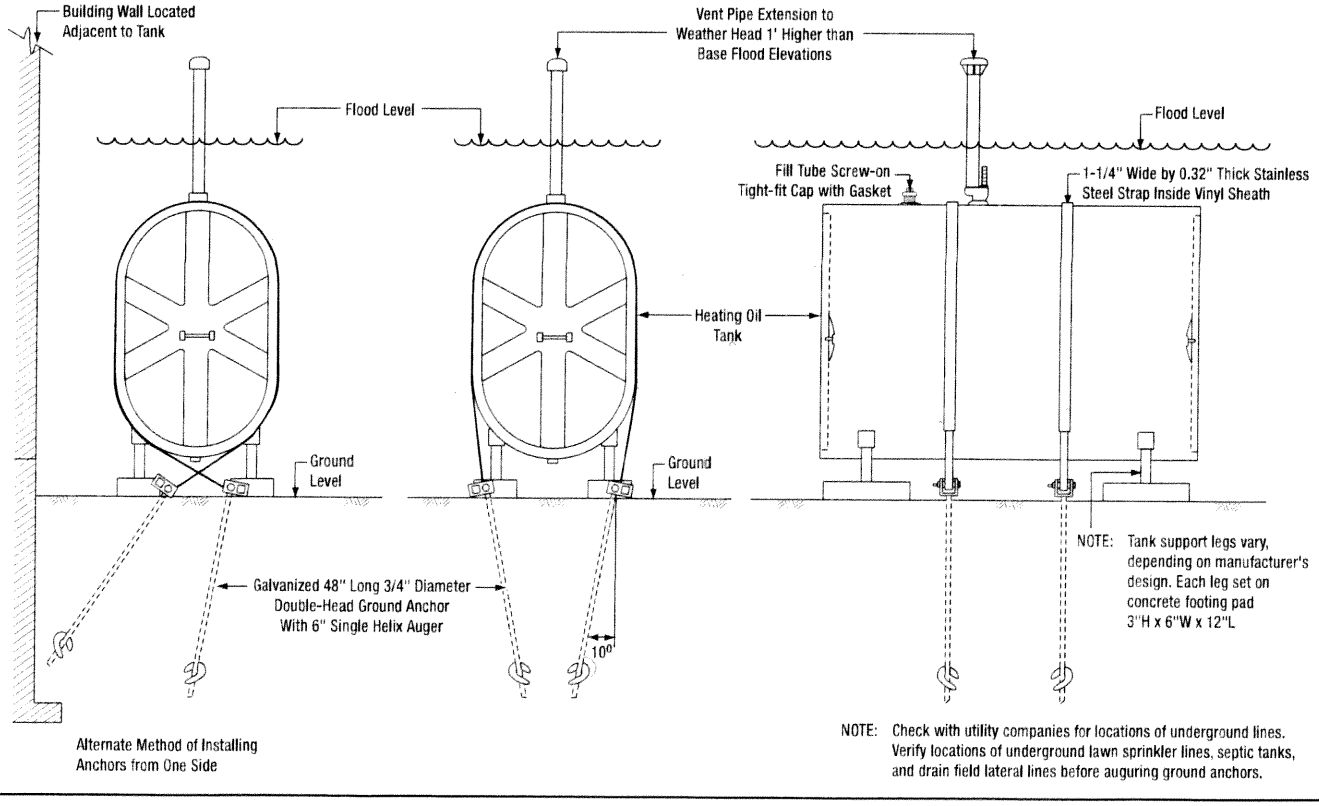
If you aren't sure whether your house is at risk from flooding, check with your local floodplain manager, building official, city engineer, or planning and zoning administrator. They can tell you whether you are in a flood hazard area. Also, they usually can tell you how to protect yourself and your house and property from flooding.

What You Can Do

Flood protection can involve a variety of changes to your house and property – changes that can vary in complexity and cost. You may be able to make some types of changes yourself; however, complicated or large-scale changes and those that affect the structure of your house or its electrical wiring and plumbing should be carried out only by a professional contractor licensed to work in your state, county, or city. One example of flood protection is anchoring fuel tanks. This is something that skilled homeowners can probably do on their own.

Anchor Outside Heating Oil Tanks

Unanchored heating oil tanks can be easily moved by flood waters. These tanks pose serious threats not only to you, your family, and your house, but also to public safety and the environment. An unanchored tank outside your house can be driven into your walls by flood waters, and it can be swept downstream, where it can damage other houses. As shown in the figure, one way to anchor an outside fuel tank is to secure it by running straps over it and attaching them to ground anchors. The ground anchors and straps described below are the same products that are required by building codes to tie-down mobile homes. These products are available from suppliers and installers that service the manufactured housing industry.



Protecting Your Property From Flooding

FEMA

Are You at Risk?

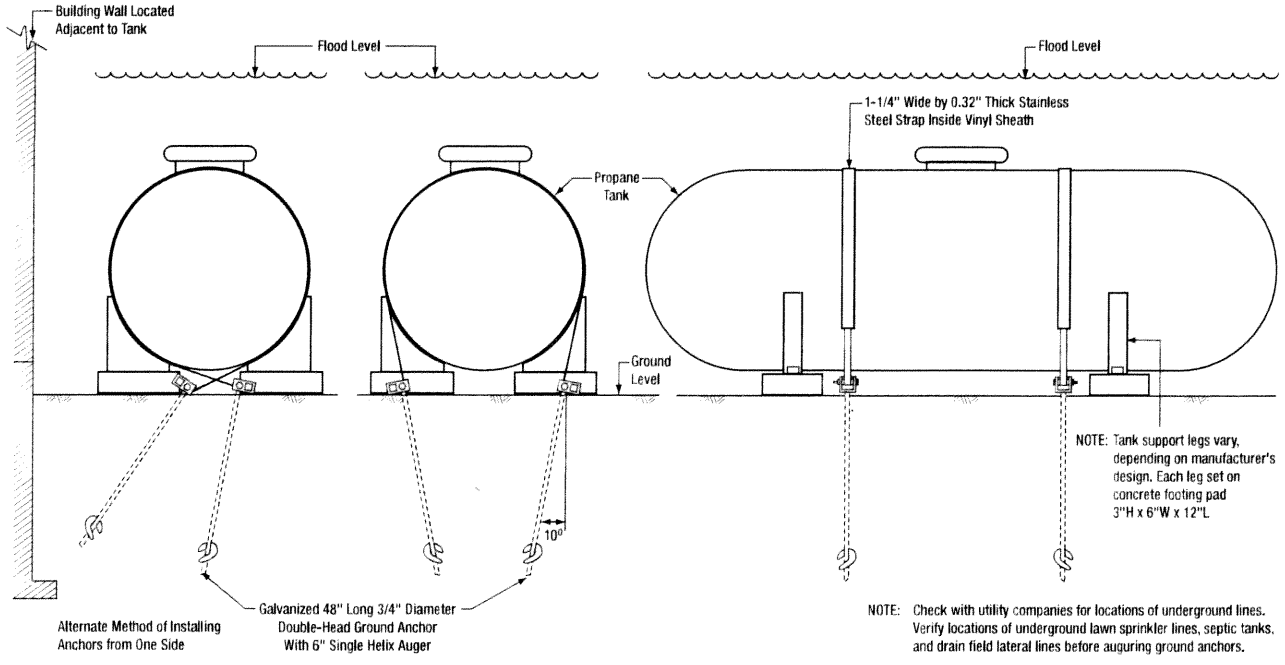
If you aren't sure whether your house is at risk from flooding, check with your local floodplain manager, building official, city engineer, or planning and zoning administrator. They can tell you whether you are in a flood hazard area. Also, they usually can tell you how to protect yourself and your house and property from flooding.

What You Can Do

Flood protection can involve a variety of changes to your house and property – changes that can vary in complexity and cost. You may be able to make some types of changes yourself; however, complicated or large-scale changes and those that affect the structure of your house or its electrical wiring and plumbing should be carried out only by a professional contractor licensed to work in your state, county, or city. One example of flood protection is anchoring propane tanks. This is something that skilled homeowners can probably do on their own.

Anchor Outside Propane Tanks

Unanchored propane tanks can be easily moved by flood waters. These tanks pose serious threats not only to you, your family, and your house, but also to public safety and the environment. Propane is stored in pressurized vessels as liquefied petroleum gas (LPG), which can be extremely volatile and potentially explosive if the tank is ruptured and the escaping LPG is ignited by a spark. An unanchored tank outside your house can be driven into your walls by flood waters, or can be swept downstream, where it can damage other houses. As shown in the figure, an inexpensive way to secure a horizontal outside propane tank is to install four ground anchors connected across the top of the tank with metal straps. Secure vertical tank (120-gallon, 420 lb. size) with two ground anchors. Set each anchor on opposite sides of vertical tank. Attach strap from each anchor to collar secured around top of tank. Attach another metal strap connected from one anchor to the other through tank base. The ground anchors and straps described below are the same products that are required by building codes to tie down mobile homes. These products are available from suppliers and installers that service the manufactured housing industry.



Sec. 30-19. Anchoring fuel tanks.

(a) All new, replaced, or existing oil, and propane tanks must be anchored against floatation, collapse and lateral movement under flood conditions by means of an approved anchorage system or shall be installed at or above base flood elevation and shall be set upon a firm foundation and supports to prevent floatation, collapse and lateral movement under flood conditions. It shall be unlawful to fill or refill any such tank that is not so anchored or elevated.

(b) All new, replaced, or existing oil tanks shall have their vent pipe extended at least three feet above the top most portion of the body of the tank. This provision shall also apply to substantial improvement buildings and buildings experiencing repetitive loss.

(c) All new, replaced, or existing oil tanks must all be fitted with a fill tube screw-on tight-fit cap with gasket.

(d) This section shall be effective November 4, 2010 for existing or replaced fuel tanks. ***(Amended 4/7/08)***

(e) Any person violating the provision of this section shall, upon conviction, be guilty of a class 4 misdemeanor and be punished by a fine of not more than two hundred and fifty dollars ($250.00). Each day in violation shall constitute a separate offense. ***(Adopted 11/5/07)***